Torrefaction treatment on fuel properties of bambusa vulgaris and Gigantochloa scorthecinii

ABSTRACT

There is a great potential for bamboo to be applied as a biofuel for the future due to its good fuel properties with low alkali index and fast growth rate. Torrefaction treatment can increase the fuel quality of biomass in terms of the calorific value, energy density and storability. The aim of this research was to explore the effect of torrefaction temperature and reaction time on the fuel properties of B. vulgaris and G. scorthecinii. The bamboos were treated at varioustorre faction temperatures (200, 250 and 300℃) and reaction time (15, 30, 45 mins). In overall, the highest higher heating value was obtained from bamboos torrefied at 300ºC for 45 mins. In general, the temperature used in torrefaction has a relatively stronger effect on the higher heating value while the impact of the residence time was considerably lesser.

Keyword: Bioenergy; Lignocellulosic biomass; Bamboo; Torrefaction